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manuscript for

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MEDIATING INFORMATION 1450-1800

We propose three main arguments in this paper:

1) Starting ca. 1450 information was stockpiled on a radically new scale. This stockpiling depended upon material conditions including the displacement of parchment by paper and the decreasing cost of paper, the increased use of blank notebooks and paper slips, which coincided with a proliferation of printed matter.¹ The stockpiling also depended on new cultural attitudes which valued expansive collections of many kinds for long-term storage-- we call this attitude "infolust" for short.

2) "Infolust" went hand in hand with new forms of organization for storing, retrieving and disseminating information. These built on medieval inventions such as the alphabetical index and ordained layout, but also new filing systems which began to be used in the late fourteenth and early fifteenth centuries, by which letters and other documents were strung together on a piece of string. ("File" is derived from the Latin *filum*, meaning a thread.) Printing facilitated new kinds of finding devices, starting with page numbers. Probably less than 10% of manuscript books had folio or page numbers in 1450. By the end of the fifteenth century, the great majority of new printed books were either foliated or paginated. The development of folio and page numbers coincided with the standardized organization of the Bible by chapter and verse.² (The first use of "chapter and verse" given by the OED is 1628, but the phrase was in use in Europe by the end of the sixteenth century.)

3) Many of the new collections of information depended upon collaborative authorship. Collaborative work was crucial to the composition

of large reference works both diachronically and synchronically: the *Polyanthea* for example grew in size sixfold through additions made in successive editions from 1503 to 1648; Diderot and d'Alembert made explicit their reliance on articles from some 250 contributors in the *Encyclopédie*. Collaborative “authorship” was also involved in the production of documents (printed, manuscript or hybrids of the two), which were generated by mercantile, ecclesiastical and government records. Our suggestion is that the literary categories of authorship that still dominate our understanding of “texts” are inadequate for many kinds of books and manuscripts, notably those cut and pasted from other works, and still more so for the great bulk of printed matter such as blank forms, bills of lading, printed slips, commonplace books, accounts, and paper money.

The broadening of the “history of the book” to include all textual forms is counter-productive to the extent that it is still held in thrall to the concept of the book. The book was only one of a wide range of material forms in which information was stored. In this paper, we want to examine methods of information management in the varied media of the early modern period by looking at the makers and users of Latin reference works on the one hand, and at methods of mercantile and vernacular note-taking on the other hand. Fragments and slips were central to both areas of working; the book was only *one* way of storing, organizing, and disseminating those fragments.

I. Stockpiling information

Storing knowledge or information on a large scale was not new to the Enlightenment.³ Pliny's *Natural History* is the principal large work to have survived from antiquity but there were others in circulation at the time which were not recorded on parchment and transmitted to later periods. Some large Byzantine collections offer indirect evidence of the existence of earlier Greek compilations now lost for example. Starting in the 13th century new habits of textual layout (including running heads and divisions into sections and subsections) and new finding devices such as the alphabetical index accompanied the considerable growth in the number and the size of scholastic and mendicant works. Vincent of Beauvais' *Speculum maius* of 1255 was by far the largest medieval compilation totaling some 4 million

words which filled a hefty folio in its last printed edition of 1624.⁴ What was exceptional in the Middle Ages became the norm in the Renaissance as the *Polyanthea* of Domenico Nani Mirabelli, which started at about 400,000 words in its first edition of 1503 grew to about 3 million words in editions after 1604. The largest printed compilations were considerably larger: the *Theatrum humanae vitae* of Theodor Zwinger started at some 2.5 million words in 1565 and tripled in size by 1586, before as the sequel to it, Laurentius Beyerlinck's *Magnum theatrum humanae vitae* (1631) reached some 15 million words in seven folio volumes of about 1000 pages each. Before the *Encyclopédie* a further record for bulk in reference works was set by Johann Zedler's *Universal-Lexicon* published between 1732 and 1750 in 64 volumes and over 67 million words.⁵ With its 17 folio volumes of text and 11 of plates, the *Encyclopédie* (at about 25 million words) fell within the norms of the very large reference book in the 18th century, though the plates constituted an innovative and exceptional expense.⁶

Within this trajectory of reference books becoming progressively larger in size both at the norm and at the outer limits, the Renaissance figures as a significant moment of change, with the spread of a new practice of accumulating large collections of personal notes. On the one hand, these personal reading notes formed the material from which large printed compilations and successive additions to them were made; on the other hand, the new value placed on stockpiling notes created a demand for printed compilations on the part of those who did not have the diligence or the time to accumulate collections of notes of their own. Many Renaissance reference works offered ready-made the kind of notes that Renaissance pedagogues recommended taking and which readers probably wished they had taken themselves—viz. by collecting quotations, examples and anecdotes from classical literature and history, sorted by topical headings which were either alphabetically arranged or if thematically arranged then also accessible by alphabetical index. The explosion of printed reference works in the 16th century (one author has estimated at one million the number of printed florilegia in circulation by 1600⁷) certainly correlates chronologically with the survival of many large collections of personal notes.

Medieval notes were temporary rather than stockpiled for the long-term. We know about notes on oral events like sermons or lectures called

reportationes because from them clean copies of these texts were drawn up for circulation; the notes themselves were taken on wax tablets or cheap scraps of parchment which were erased or used for others purposes after the finished copy was produced.⁸ Florilegia and encyclopedias turned what began as personal notes into shared resources designed for circulation. But we almost never have a stockpile of personal notes that survive qua personal notes from the Middle Ages. Even for a very abundant and prominent author like Thomas Aquinas whose autograph manuscripts were saved and treated with the status of relics in his own day and since, we have no surviving personal notes. Instead the reconstruction of his working methods by Antoine Dondaine suggests that Aquinas consulted books as needed while composing and composed by dictation to one or more secretaries (he reportedly could dictate simultaneously on different topics to three or four secretaries at a time). Aquinas composed whenever he was ready, including in the middle of the night, in one instance waking up his companion Reginald in order to do so.⁹

By contrast starting in the Renaissance we have many, often very large collections of personal notes which have come down to us thanks to the care with which they were saved by the note takers themselves, then by their heirs, and in many cases by continuously surviving institutions such as the Royal Society or various libraries. Humanists like Angelo Poliziano (1454-94), left many volumes of notes and papers which are now are dispersed among various many European libraries.¹⁰ From the 15th century we also have the first large collections of letters.¹¹ A recent volume edited by Michael Hunter offers careful studies of the transmission of a number of collections of papers by the “new scientists” of 17th-century England.¹² Other large stockpiles of personal notes include the 20-odd volumes of William Drake's reading notes studied by Kevin Sharpe, or the 45,000 pages of notes by a German professor Joachim Jungius which are estimated to be only a third of the notes he took in his life.¹³ Some of these abundant notetakers were also published authors, while some were not.

The stockpiling of abundant reading notes benefited from some preconditions, both physical and cultural. One was a medium that was cheaper than parchment and more durable than wax tablets. Paper was manufactured in Italy starting in the 13th century and spread north in the 14th century. But the production of paper was vastly increased and its price lowered once printing created a regular and heavy demand for it.¹⁴ In this

way it is perhaps not coincidental that large-scale notetaking, always on paper, emerged around the same time as printing. Another possible correlation between the stockpiling of reading notes and printing is that note-takers may have become newly aware of the possibility of profiting in reputation or financial gain by printing their notes or from their notes.

While printing may have facilitated the stockpiling of notes in these ways, equally important in this development is a new cultural conception of scholarly method prevalent in the Renaissance-- what one might call "info lust." This attitude is evident notably in Drexel's assumption that it is useful to accumulate notes throughout one's reading, even without having a specific compositional purpose in mind, but for the very purpose of forming a treasury of material to have on hand for any writerly or conversational need.¹⁵ This kind of stockpiling is distinct from taking notes with a specific compositional purpose in mind; instead it looks like a textual manifestation of contemporary practices of collecting objects, medals and paintings in cabinets of curiosities.

One of the presuppositions of infolust, sometimes made explicit, was that, in the words of the expert on Joachim Jungius "no field was too remote, no author too obscure that it would not yield some knowledge or other."¹⁶ Similarly Gabriel Naudé observed, in his advice on forming a library, that it was "necessary to pose as a maxim that there is no book, however bad or decried, which will not be sought after by someone over time."¹⁷ Naudé was echoing here the tag attributed to Pliny by his nephew that there is no book so bad that some good cannot be gotten from it. This desire to trawl all sources in search of items worth selecting and storing for safe-keeping was an important motivation driving the stock-piling of notes on unprecedented scales in the early modern period. Other motivations have been identified too. Some scholars have suggested that note-taking among gentlemen without publishing ambitions (like William Drake or the younger Robert Sidney) served as a kind of "therapy" during the tensions of the English civil war, or as a place in which to work out one's personal values and positions.¹⁸ For somewhat different reasons, Adrien Turnèbe associated his collection of commonplaces on classical literature with the French civil wars, because "the unpleasantnesses of the time and the country's fall into decline" made it impossible for him to focus on "serious studies."¹⁹

Others emphasized the role of notetaking in working toward the common good for an international republic of letters. Conrad Gesner for example acknowledged in print the contributions of scores of people all over Europe who had sent him their observations and specimens. Or Pierre Gassendi comments of Nicolas Fabri Peiresc (1580-1637) that he was most diligent in writing down "any notable thing came into his mind, or was suggested by some other or observed in reading" because he could "never endure that the least invention or observation of any man should be lost, being always in hopes that either himself, or some other, would be advantaged thereby." Therefore "he wrote things down in his memorials because he then judged they were out of danger of being forgotten."²⁰ Although he never published anything Peiresc would share material from his abundant collection of notes with his many correspondents across Europe. The value of a collection of notes for others beyond the original note-taker is evident from attempts to buy the notes of famous scholars (rarely successful) and the careful arrangements made to save and bequeath collections of notes.²¹

Scholarship, though, was only one of the areas in which note-taking developed in new ways. The increasingly organized state institutions in early modern Europe were crucial agents in the gathering and storing of information and it increasingly drew upon the resources of the printing press. In the 1580s, Philip II ordered *Relaciones geográficas o topográficas* ["Geographical or topographical reports"] to be sent out to every town council in Spain. The printed forms required that a series of questions be answered in a prescribed sequence so as to facilitate the tabulation of the answers received. And in 1622, Philip IV sent out printed questionnaires on a massive scale to elicit opinions on his new proposals "for the Well-Being, Preservation, and Security of These Kingdoms." Spanish inquisitorial trials were also recorded on printed blanks such as the following:

In the town of Valladolid, the _____th day of the month of _____ of one thousand, five hundred and _____, in the presence of the Lord Inquisitors _____; _____, resident of _____, having been called to appear in the court at _____, . . .²²

The printed forms that Fernando Bouza describes proliferated throughout Europe and the New World. When William Bradford proclaimed the arrival

of “that great Art and Mystery of Printing” in Philadelphia in 1685, he was not thinking of publishing books but rather of printing the necessary blank forms for the business of the colony. Similarly, William Goddard, advertised that he printed “Blanks, Policies of Insurance, Portage Bills, Bills of Lading and Sale, Letters of Attorney, Administration Bonds, common Bonds, Deeds, Writs, and Executions, and all Kinds of Blank. . . either Wholesale or Retail.”²³ Printed forms, to be completed by hand, were necessary for government and commerce alike.

Printed forms were not the only new system of note-taking. As Chris Kyle and Jason Peacey have shown, the *arcana imperii* or state secrets of the English Parliament were opened up in an extraordinary way during the 1620s and 1630s. For the first time, members of the House of Commons and the House of Lords openly took notes during parliamentary sessions. As they exited the chambers, professional scribes copied their notes and circulated them all over Britain. A gentleman in Cornwall recorded in his diary receiving transcriptions of the main debates in Parliament a week after they had taken place – the week being the time it took for the postal service to deliver the news. And the desire for accurate parliamentary news was a driving force behind the development of shorthand in the seventeenth century.²⁴ While shorthand was at first above all connected to taking down sermons, it was professionalized in the later seventeenth century by state functionaries like Samuel Pepys. Pepys’s diary was famously written in shorthand but an over-emphasis upon the diary has misled commentators as to the significance of Pepys’s shorthand – as if he only developed it to protect his sexual secrets from the eyes of his wife. The diary itself is written in such a fine and careful script that it cannot have saved Pepys very much in terms of time. But it helped him to perfect the shorthand that he used on a regular basis for his work.

On the 17th of November 1666, Pepys records writing his “great letter” to the Duke of York on the state of the Navy. As he notes, “I had writ [the letter] foule in short hand.”²⁵ But he then read it aloud to Will Hewer, who was acting as Pepys’s secretary, while Hewer took down Pepys’s dictation “*fair* in short hand.” Hewer then read his “fair” shorthand version of the letter back to Pepys, while Pepys took it down in long hand “which saves me much time.” It is this long-hand version that Pepys read aloud the next day to his patrons, Lord Bruncker and Sir William Coventry: “I read

over my great letter, and they approved it.” But the approval must have clearly come with suggested revisions, since Pepys records: “Back home in my Lord Bruncker's coach, and there W. Hewer and I to write it over fair; dined at noon, and Mercer with us, and mighty merry, and then to finish my letter.” It was this *fourth* copy – a longhand revision (4) of an earlier longhand revision (3) that was a dictated copy of Hewer’s fair shorthand (2) that was in turn a dictated copy of Pepys’s rough shorthand (1) – which was finally delivered to the Duke of York.

If shorthand played an increasingly important role in the practical business of the Navy Office, it was also useful for scholarly note-taking. On the 15th of March 1669, Pepys went to the Office of the Rolls to find material for his work on English history. He recorded:

Up, and by water with W. Hewer to the Temple; and thence to the Rolls. . . : and so spent the whole morning with W. Hewer, he *taking little notes in short-hand*, while I hired a clerk there to read to me about twelve or more several rolls which I did call for: and it was great pleasure to me to see the method wherein their rolls are kept; that when the Master of the Office, one Mr. Case, do call for them. . . he did most readily turn to them.

Drawing upon Hewer’s shorthand and the clerk’s reading aloud, Pepys himself had the leisure to note and admire the filing system that enabled the speedy identification and retrieval of the required rolls.

For our final example of new techniques of note-taking, we turn to the sea. Surprisingly from a modern perspective, ships were one of the main schools for the development of note-taking. When the English East India Company was founded at the beginning of the seventeenth century, it was ruled that four different people on every ship should keep a daily journal: the captain, the master, the master’s mate, and the purser. Their journals were handed in to the central office in London when they returned, where they were transcribed into notebooks, which were in turn given to the captains of the next outgoing fleet. These records of the previous voyage were checked against the prevailing conditions so as to compile constantly revised accounts of currents, winds, and other relevant navigational information.

Of the notebooks that survive, one is by Thomas Bonner, who was engaged as master's mate on the merchant ship, *Expedition*, in 1614:

The neat, compact writing of the first two or three pages [of his notebook] deteriorates in the later pages and at times becomes loose and scrawling. . . The variations in the handwriting and the use of different pen points, despite the over-all unity of presentation, are consistent with the transfer at convenient times, but under varying climactic conditions, of several days' entries from an original rough journal which would have been written up daily.²⁶

Before he sailed, Bonner bought "six pair of gilded table books" in which to keep notes.²⁷ It was probably in these table books that Bonner made the rough notes that later, "at convenient times," he transferred into his journal. "Table books," or "writing tables" as they were also called, were first produced for the use of merchants in the early sixteenth century. They were usually composed of printed material, including a "perpetual almanac" with the dates of relevant fairs and a variety of useful tables, bound together with leaves of erasable paper or parchment on which one could write with a stylus made of soft metal.²⁸

Jan Gossart's *Portrait of a Merchant* (c. 1530) [Figure 1] depicts a merchant with all the accoutrements of writing. In the bottom right corner of the portrait is a notebook, about half the size of the merchant's hand. The tables are rather difficult to make out because a scale for weighing the gold coins has been put on top of them. They have a wallet binding with metal clasps on the flap and the clasps are secured by a brass stylus.²⁹ By an extraordinary coincidence, the earliest tables that we have discovered were made at the same time and in the same city, and by the same man as the tables in Gossart's painting. The title page of the printed almanac at the front of these tables, which are now in the New York Public Library, both gives cleaning instructions and calls attention to significance of the stylus:

Calendar: ¶Item you may write here with a stylus of gold, silver, tin, copper, or brass, and you may erase [what you have written] with a wet finger. ¶And when you have worn out [the erasable surface], so that you cannot write on it any more, you can get it repaired by Jan

Severszoon, parchment maker, for a little money, and you can then write on it as if it was new. ¶ Sold for your benefit in the famous mercantile city of Antwerp, on the Lombaerde veste: wholesale by Jan Severszoon, at the house of Jan Gasten, bookbinder.

¶Item if you get grease on it by erasing with your finger, you should use a clay sponge [*cleyspongie*] with a little flour, and the grease will come off.

¶In the year of our Lord, 1527.³⁰

But there is a further, practical point to be drawn from Gossart's painting. As we noted above, the tables in the picture are partly obscured by a pair of scales for weighing the gold coins that are also depicted. If you could open Gossart's tables, as you can the tables in the NYPL, you would find a table giving the appropriate weights for the different kinds of gold coins in circulation. Such tables were, in fact, a standard feature of these erasable notebooks. When they were mass-produced in London in the later sixteenth century, they contained not only similar tables giving the appropriate weights but also six pages of woodcuts of gold coins to help in identifying the different currencies in circulation. An additional feature of these English tables helps to account for the curious "backwardness" of English merchants in the adoption of arabic numerals, which were in standard use in France at the same time. For the English tables contained convenient multiplication tables – but these tables were still in roman numerals.³¹

From the fifteenth century on, scholars, state bureaucrats and merchants developed and shared new technologies of note-taking which played a crucial role in forms of information management that we associate with modernity, including the encyclopedia and more systematic record-keeping in many areas, from science to government and commerce.

II. Finding devices and the decline of memory

Abundant stockpiles of notes posed new problems of information management. Drexel complained of the weakness of memory, and assumed that notetakers would forget the notes they had taken and the headings they had used. He therefore recommended keeping not only three different notebooks -- one for quotations, one for historical examples and one for

bibliographical references -- but also an index to each notebook to facilitate recovery of the material stored there. In practice, few abundant notetakers seem to have devised such systematic methods for retrieving items from their notes.³²

Many scholars commented on the messiness with which abundant notetakers kept their personal papers. Some were able to manage the mess themselves, like Peiresc of whom Gassendi reports: "though he would frequently excuse himself that all in his House was nothing but a confused and indigested Masse, or heap, yet was he never long in seeking anything in so great an heap, provided that none meddled with his Rarities, Books or Papers but himself; and that some body else, being commanded to fetch this or that, had not put them out of order."³³ Others were less successful. Although he devised many an organizational scheme in the abstract, G.W. Leibniz apparently reported being unable to find things among his mass of unsorted notes and preferred to do the work again than to search for it in vain: "After having done something I forget it almost entirely within a few months and rather than searching for it amid a chaos of jottings that I do not have the leisure to arrange and mark with headings I am obliged to do the work all over again."³⁴

Robert Boyle, too, was notoriously messy with his papers. Scholars working through Boyle's papers after his death did not have the advantage of personal memory of the work on which Boyle himself must have relied; one called them a "chaos, rude and indigested many times God know's."³⁵ Boyle also composed on loose sheets, which could be rearranged within and between the various treatises he would work on simultaneously, and which facilitated using the same passage in more than one place, but the sheets were "often lost or mislaid, by himself or his amanuenses" and the order between them was indicated only by catchwords to the next sheet.³⁶ As a result Boyle had to apologize in print for one instance in which parts of a work were published in the wrong order because of a "transposition of loose sheets where the copy was sent to the press."³⁷

Individual stockpilers of reading notes could rely on their memories to find their way through their manuscripts even if these were messy and minimally sorted, but the users of reference works needed formalized finding devices to navigate materials they had not had a hand in preparing. Compilers of printed reference works were responsible for a number of innovations in

finding tools and page layout which became standard trappings of various genres of reference books, including many still in use today. The oldest paratext to accompany compilations was probably the list of authorities. Such lists had ancient antecedent and were transmitted to the middle ages through legal genres.³⁸ These lists were not finding devices but a kind of advertisement for the quality of the work by displaying the range of authorities mentioned, often only through intermediate sources which were only occasionally acknowledged.

Alongside the list of authors the other list commonly found in early modern compilations was a list of headings in the order in which they appeared in the book. These lists were often called indexes, though they would not be considered indexes in modern parlance. The list of headings offered a browsable overview of the categories under which the material was sorted. The most elaborate of these also listed the sections and subsections in each heading with appropriate indentations and page numbers referring to the main text. These outlines provided a powerful visualization of the hierarchical structure of the work, as well as an effective way to access specific parts of the text.

The most powerful tool was the alphabetical index, first devised in the 13th century for biblical concordances, and which referred to layout independent structures of the text. With printing indexes routinely referenced page and folio numbers even though this meant that they had to be redone with each new edition of the text. Explanatory blurbs indicate that contemporaries considered the consultation of indexes to be slow and burdensome -- they were well aware of the multiple terms under which something of interest might be entered.³⁹ Drexel recommended taking one's own notes, rather than relying on printed reference works precisely because it was so hard to find what one was looking for in them.⁴⁰ The first attempts at standardizing subject headings date from the professionalization of library science in the late 19th century, but printed reference works served as a source of conventional headings often imitated in manuscript notebooks. In the Renaissance florilegia many of these headings had been borrowed from medieval antecedents and were focused on the Christian vices and virtues. By the the 18th century the headings used in both personal notes and printed reference works ranged much more widely and idiosyncratically.⁴¹ The *Encyclopédie* offered no browsable list of headings or standard of systematic coverage but a vast number of articles of varying

lengths, depending on the contributions received and Diderot's own willingness to supplement them and his strategies for doing so.

One Jesuit advice book of 1614 still in print in 1785 (but now for the use of Calvinists) called for notetakers to recopy and re-read their notes in order to master them from memory.⁴² This advice, if it was ever followed by schoolboys, was certainly not widely heeded in the 18th century, when note collections were larger and more idiosyncratically arranged than ever. Whereas humanists reported and boasted of feats of memory, by the late 17th century memory was perceived by some as a drag on the more important faculties of reason and wit.⁴³ Renaissance reference books by making so much available without prior mnemonic contact with the material may have contributed to the downgrading of memory as something merely mechanical.

If memory was increasingly downplayed in post-humanist scholarship, both government and commerce required new solutions to an "information overload" that could not possibly be stored in human memories alone. As we noted above, Pepys in his role as amateur historian was able to admire the efficiency with which the Office of the Rolls stored their records for rapid retrieval. A variety of new forms of shelving, cabinets, pigeon-holes, and bags were employed to make the scholarly trope of the beehive a material reality in everyday practice. In the first century of the Common Era, the Greek historian Plutarch had elaborated what was already an ancient conceit, comparing the good reader to a bee:

[L]ike as Bees have this propertie by nature to finde and and sucke the mildest and best honie, out of the sharpest and most eager flowers; yea and from among the roughest and most prickly thornes: even so children and yoong men if they be well nurtured and orderly inured in the reading of Poemes, will learne after a sort to draw alwaies some holosome and profitable doctrine or other, even out of those places which moove suspition of lewd and absurd sense.⁴⁴

The Protestant humanist Philip Melanchthon elaborated Plutarch's conceit into an organized program by drawing parallels between the work of the bee, the material properties of different kinds of notebook, and differentiated techniques of note-taking.⁴⁵ One can schematize Melanchthon's program as follows:

The Bee's Work	Material Support	Form of Writing
1. Finding the nectar in the flowers	Books and their margins	Underlining, marginal marks and notes
2. Gathering nectar from flowers	Small erasable tablet or waste book	"Promiscuous" notes
3. Putting the pollen in the correct cell of the honeycomb	Large commonplace book	Notes under proper alphabetical headings
4. Making honey	Sheets or a gathering	Composing, writing

A hundred and fifty years later, in a small town in North America, the German Quaker Francis Pastorius was still working out the details of Melancthon's program in his massive manuscript compilation, *Francis Daniel Pastorious His Alphabetical Hive of More than two thousand Honeycombs Begun in the year 1696*. Pastorius's "Paper-Hive," as he called it, was the final alphabetical "digestion" of a series of smaller notebooks on a diverse subjects, ranging from the laws of Pennsylvania to land-sales to gardening. Pastorius wrote on one of the several title pages of his massive compilation: "From Bees returning to their hive learn in collecting how to thrive." And he added below:

For as much as our Memory is not Capable to retain all remarkable Words, Phrases, Sentences, or Matters of Moment, which we do hear and read, it becomes every good Scholar to have a Common Place Book, & therein to Treasure up what ever deserves his Notice &c. And to the end that he may readily know, both wither to dispose and insert each particular, as also where upon Occasion to find the same again &c. he ought to make himself an Alphabetical Index, like that of this Bee Hive.⁴⁶

What is striking about Pastorius's compilation is the range of practical uses to which he put it. While he was steeped in European scholarship, he was committed to using that learning for the practical purposes of founding and governing Germantown in Pennsylvania. Moreover, although he was himself German, and knowledgeable in seven languages, including Hebrew, Greek,

and Latin, he decided to write in the vernacular of the dominantly English province. By that act, he cut himself off from transatlantic humanist scholarship so as to create a book that he made available to anyone who could read English in his new homeland.

While Pastorius employed a technique that had been developed by scholars for the practical sorting, storing, and retrieval of information, merchants developed their own methods of filing information. If we return again to Jan Gossart's *Portrait of a Merchant*, we can see not only the depiction of a new kind of erasable notebook but also one of the earliest representations of a new kind of filing system. Like many of the most radical inventions, this system seems too simple to *have* a history. Yet we know of no earlier example of this use of pieces of string to file letters, hanging up on a wall, upside down and back to front. The two files are identified as *Alrehande Missiven* (miscellaneous letters) on the left and *Alrehande Minuten* (miscellaneous drafts) on the right. So hung, not only were the contents of the letters preserved from the observation casual intruders but also they could be read by the merchant by the simple expedient of turning the letters up. It was only after seeing Gossart's representation of this filing system that Heather Wolfe discovered that Cambridge University routinely kept its archives in this way into the seventeenth century. Just as in Gossart's painting, the filed documents at Cambridge are protected by a piece of vellum at the back, in which they can be rolled up when they are transported about. Indeed, one crucial aspect of the new organization of information was the combination of permanent depositories with portable units of notes.⁴⁷

One can trace the spread of such filing systems throughout Europe in dictionary entries:

“*File, filacium*, is a threed or weier whereon Writs or other exhibits in Courts are fastned for the more safe keeping of them.” (1617)

“[T]o File up a letter, *Eenen brief aan een snoer rygen*.” “Snoer, a *String, Cord*.” (1708)⁴⁸

Increasingly, inventories of large-scale purchases of stationery include the simple but necessary equipment for filing. A 1643 Parliamentary bill recorded not only the purchase of parchment, paper, quills and ink but also

two shillings spent on “Needle thred and Lases.” And on a larger scale, a 1699 “Accompt of what hath been deliver’d for His Majestys Service, To the Clerk of the Hon.ble House of Commons” recorded not only a thousand quills and ten thousand wafers (for sealing letters) but also two kinds of bags for storing documents and “6 large Needles, ½ lb of Thread” for filing documents.⁴⁹ As with new methods of note-taking, new methods of organizing information moved rapidly and easily between the scholar’s study, the merchant’s store and the government office.⁵⁰

III. Methods of collaborative composition

Large-scale scholarly reference works were always collective undertakings, dependent on the contributions of many both diachronically and synchronically. Reference works routinely drew heavily on pre-existing sources, though these were not often acknowledged, and each single edition involved the work not only of the author listed on the title page, but also of often un-named others (indexers, amanuenses and copyists for example).

We know very little about how medieval compilers worked, but the large compilations like Vincent of Beauvais’ were surely collaborative. Religious orders, the Dominicans in particular, offered a good source of manpower for major undertakings like the biblical concordances of the 13th century or the *Speculum mauis*. Most monks were literate, some even learned; all would carry out assignments, usually without expecting remuneration or recognition. A few remaining working papers from the Biblical concordances, extant because they were used in the bindings of early modern books, indicate that the monks were each assigned a different letter of the alphabet and entered the words in the Bible beginning with that letter onto large sheets. In this medieval method of indexing by filling in blank space under single letters or pairs of letters, the results were only partially alphabetized.⁵¹

From the sixteenth century we have clear evidence for the use of slips in alphabetizing and compiling both from authors recommending the use of slips and from surviving manuscripts which feature slips glued into place in alphabetical order. The Italian naturalist Ulisse Aldrovandi (1522-1605) compiled many manuscript indexes and collections of notes by gluing slips into notebooks, generally in alphabetical order.⁵² Slips survive also in the

working papers of Theodor Zwinger of Basel (1533-88), a professor at the University of Basel and the author of the largest compilation of the period, the *Theatrum humanae vitae*, and of Conrad Gesner of Zurich (1516-65), a great compiler of bibliographical and natural historical material, who explicitly advocated the use of slips, notably to form an index.⁵³ Zwinger acknowledged using material collected by his stepfather Conrad Lycosthenes in compiling his massive *Theatrum*. Indeed we find in the Zwinger Nachlass excerpts written in Lycosthenes' hand and which follow the format of the printed *Theatrum* (with capitalized keywords beginning each short paragraph). Some other slips survive too, in a much messier hand, possibly Zwinger's own [Figures 2 and 3]. While Zwinger's slips were all manuscript, the slips on which Gesner took notes (as glued for example into a 3-volume folio manuscript prepared by Gesner's executor Caspar Wolf as the "Thesaurus medicinae practicae") included passages cut out from a wide range of sources: letters he received, manuscripts marked up for casting off in preparation for printing, and printed books, both new and as marked up in the printing process, notably to prepare a later edition.⁵⁴

Aldrovandi reportedly kept his loose slips (prior to gluing) in canvas bags, one for each letter of the alphabet.⁵⁵ We do not know how either Zwinger or Gesner stored the slips before they ended up in their current form. Presumably Gesner's slips were stored under the topical headings under which they were later glued. The slips in the Zwinger manuscripts were bound into the last volume of Zwinger's letters in the 19th century. But some of the slips in Lycosthenes' hand refer to other slips by folio number in a "tomus" which implies that they were stored in volumes, possibly in the way that was illustrated in print much later, in Vincent Placcius' *De arte excerptendi* (1689) [Figure 4]. The manuscripts at the University of Basel also include some contemporary records--of scholarships awarded to students at the university in the late 16th century--left in their original state. These individual sheets of paper were folded twice, forming a little bundle which was tied shut with a string and inscribed with the name of the student and the field studied. These "Amerbach slips" ("schedae Amerbachianae") are preserved in loose alphabetical order in a wooden oval box. Although the catalog describes the box as "old" it may postdate the formation of this archive in the 16th century.⁵⁶ [Figure 5]

Both Zwinger and Gesner had the help of amanuenses; only Zwinger named one of them—his “very dear cousin.”⁵⁷ In addition to this synchronic help, the cutting and pasting from the notes and publications of others evident in Zwinger’s and Gesner’s use of slips constitutes a second form of collaboration. This diachronic collaboration was usually involuntary on the part of the author whose work was recycled in this way. Gesner made a habit of acknowledging in print those contemporaries who contributed observations and specimens, but the notes he cut up from written sources generally were generally not attributed. Many of Zwinger’s excerpts include the author and possibly a title, though the source which is named in this way is not necessarily the source that Zwinger used. The variation in these references between different editions is evidence of considerable latitude in choosing a source to name, particularly when the authors in question were dead. Title pages often named some people who had a hand in creating successive editions of a reference book, but these were only a small subset of those actually involved. Many editors and indexers and all the lowlier amanuenses and copyists remained, to use Shapin’s memorable phrase, “invisible technicians” of text management.⁵⁸ 17th-century editions of Mirabelli’s *Polyanthea* named five or six men as responsible for major developments in the work since its first edition of 1503. Similarly in the preface to his massive *Magnum theatrum* Laurentius Beyerlinck named four different people who laid the foundation for his own work. The list culminated in his printer Antonius Hieratus who generously provided him with a copy of Zwinger’s *Theatrum* (presumably two in fact, so as to facilitate cutting out text from both sides of each leaf) from which he describes cutting and pasting to form the *Magnum theatrum*.⁵⁹ In tripling its contents Beyerlinck most certainly cut and pasted liberally from other works as well. Beyerlinck acknowledged for example relying on a work on astronomers by Heinrich Rantzau from which he lifted material for 20 pages of his article on “astronomy, astrology.”⁶⁰

In medieval and Renaissance compilations originality of contents was never a prime goal. Compilers took credit for the selection of items and their assignment to headings, as well as for the arrangement of headings and for finding devices that facilitated use. But compilers generally took limited responsibility for the items being compiled -- they promised only to compile faithfully the claims of others, although those others were not consistently identified. This stance enabled compilers to include items with which they

would not have wanted to be personally associated in print. For example, Zwinger could include Paracelsian theories in this way, while maintaining his standing as a university professor of medicine expected to uphold Galenic teaching. Zwinger was sympathetic to Paracelsianism, but reluctant to advertise this publicly.⁶¹

Renaissance compilers were clearly adept at manipulating (both seeking and avoiding) authorial credit to their best advantage. The question of how authorial strategies differed in the *Encyclopédie* is a complex one. On the one hand Diderot and d'Alembert sought and acquired authorial status for their work on it. On the other hand, the work derives much of its authority from its identification with a "society of men of letters" many of whom remained anonymous. Some contributors called attention to their work in the book, while others sought to hide it.⁶² Although the specifics of Diderot's working methods have not been studied in detail, it is likely that Diderot penned articles attributed to others and modified articles contributed by others. Some of the articles displayed great originality in argumentation and content and articulated positions easily identified with Enlightenment thinkers, but others were indebted to existing sources that were not acknowledged.⁶³

In the 18th century large-scale compilation posed problems that were familiar to compilers in the 16th century and relied on similar solutions. Samuel Johnson used slips to compose his dictionary, some of which have survived only because they were accidentally left out of the new edition for which they had been made.⁶⁴ In compiling the first edition of the *Encyclopedia Britannica* (3 vols, 1768-71), William Smellie also reported cutting and pasting from existing works: "he used to say jocularly, that he had made a Dictionary of Arts and Sciences with a *pair of scissors*, clipping out from various book a *quantum sufficit* of matter for the printer."⁶⁵ Although cutting from printed books remained exceptional, the use of slips became a standard technique of lexicographers and the index card, developed in the late 19th century was essential to library catalogs and scholarly research techniques. The first standardized slips to be used in library catalogs and note-taking (for example by Montesquieu) were playing cards, in the 18th century. These offered a convenient place for writing since the backs of playing cards were blank before the 19th century.⁶⁶

Samuel Johnson noted in his preface that "a large work is difficult, because it is large." By taxing or overtaxing ordinary working methods the

composition of large works stimulated innovative strategies for stockpiling, accessing information and recycling existing notes and works and engaging multiple contributors in large collective projects. At the same time collaborative encyclopedias and dictionaries were generally attributed to the heroic labors of named authors. It is true that one can find such attributions in the Renaissance. But John Minsheu's massive 1617 dictionary is prefaced not only by a list of all the subscribers that made the project feasible but also by an account of the academics who had carefully checked (and helped to compile) the entries.⁶⁷ In the case of the Calepino dictionary which was printed with constant modifications and additions in 165 editions from 1502 to 1785 the attribution of each edition to "Ambrogio Calepino" (1440-1510) as compiler of the first edition served as a brand rather than an indication of authorship.⁶⁸ In 1685 Adrien Baillet noted that so many able hands had been involved in modifying and improving Calepino's original (which Baillet called "pitiful") that "today ... there is almost nothing left by Calepino but the title and name of the book."⁶⁹

Compilations highlight especially vividly the inadequacy of the modern conception of "authorship" to describe their composition, which relied on so many contributions, from printed sources to generations of editors and helpers who were only occasionally named. The modern regime of attributing works to single authors has obscured the complexity of many kinds of early modern texts. Some particularly radical effects of the drive to associated texts with a single authors are visible in the revised *Short-Title Catalogue of Books Printed in England, Scotland, and Ireland. . . 1475-1640* (1986).⁷⁰ The STC contains no entry at all for "Anonymous." The nearest that it comes to such a category is "*Anonymus*," which contains a mere four cross-references to entries elsewhere in the volume. Yet the majority of all these STC books, which are now organized under author headings, were printed anonymously. In other words, a regime of authorship that had always been invoked for particular categories of book was now generalized as the method of organizing *all* books. As with the STC, the reorganization of new forms of knowledge in the eighteenth century entailed the reorganization of the past as well. Indeed, "Shakespeare" became the most powerful of all authorial figures in the Enlightenment and a central figure in disputes over copyright. Yet not a single play by Shakespeare had appeared with his name on it prior to 1598. And even when his work was gathered together in 1623,

genre was the principle by which the plays were organized. Genre, in emphasizing the conventions within which texts are produced, places limits on the unbounded genius of the individual author. The work of Shakespeare's eighteenth-century editors was to undo any such constraints. It now became crucial first to date each work and then to place it in the order in which the author supposedly wrote it.⁷¹ Thus, in tracing the order of the Shakespeare's plays, one was simultaneously tracing the "growth of a poet's mind" (the subtitle that Wordsworth applied to *The Prelude*).

Against this emphasis on individual genius, we can trace the continuing traditions of collaborative and anonymous authorship through the 18th century. As a new regime of authorship (and copyright) expanded in Europe, Benjamin Franklin actively defended plagiarism as a virtue. Franklin published the longest pamphlet he ever wrote during his career as a printer in support of Samuel Hemphill, a preacher who had been accused first of religious unorthodoxy and then of plagiarism. Franklin wrote that Hemphill's accusers

endeavour to lessen [him], by representing him as a Plagiary, and say, *They are apt to think, that if he had honestly given credit to the several Authors from whom he borrowed much of what he deliver'd, it wou'd have made a considerable Abatement of the Reputation he supposes he gain'd, &c.*

But which of these Gentlemen, or their Brethren, is it, that does give due Credit for what he borrows? Are they beholden to no Author, ancient or modern, for what they know, or what they preach? . . . They chuse the dullest Authors to read and study, and retail the dullest Parts of those Authors to the Publick. It seems as if they search'd only for Stupidity and Nonsense. . . . But when Hemphill had Occasion to borrow, he gave us the best Parts of the best Writers of the Age. Thus the Difference between him and most of his Brethren, in this part of the World, is the same with that between the Bee and the Fly in the Garden. The one wanders from Flower to Flower, and for the use of others collects from the whole the most delightful Honey; while the other (of a quite different Taste) places her Happiness entirely in Filth, Corruption, and Ordure.⁷²

Nowhere is Franklin closer to the long Renaissance tradition of commonplacing and collaborative writing than in his account of the bee and the fly. Both are dependent upon what they collect from others. The difference is that the fly collects “Ordure” while the bee collects pollen. Franklin “plagiarized” his account of the bee from one of his favorite writers: Plutarch. In his autobiography, Franklin wrote that he “read abundantly [in Plutarch’s *Lives*], and I still think that time spent to great Advantage.”⁷³ In defending Hemphill, Franklin turned to the *Moralia*, in which, as we noted above, Plutarch describes “How a Yoong Man ought to heare Poets, and how he may take Profit by Reading Poemes,” like a bee finding and sucking “the mildest and best honie, out of the sharpest and most eager flowers.”⁷⁴

Transforming Plutarch’s moral antithesis into an aesthetic distinction between dullness and delight, Franklin also appropriated the bee less as a metaphor for understanding than as a pragmatic teacher from whom to learn. The bee’s lesson could be broken down into three processes: gathering pollen (taking “promiscuous notes” on one’s reading); storing the pollen in the cells of the honeycomb (selecting and organizing one’s notes under topical headings); and producing honey (putting one’s reading to use to preach sermons, write poetry, or compile almanacs).

Franklin’s modern editors are clearly embarrassed by Franklin’s defense of Hemphill, suggesting that he was “[p]utting on the best face he could”.⁷⁵ But this is surely not right, since Franklin returned to champion Hemphill in his autobiography, fifty-three years later. There, he gave both a more extreme version of Hemphill’s plagiarism and a more extreme defense:

One of our Adversaries having heard [Hemphill] preach a Sermon that was much admired, thought he had somewhere read that Sermon before, or at least a part of it. On Search he found that Part quoted at length in one of the British Reviews, from a Discourse of Dr Foster’s. The Detection gave many of our Party Disgust, who accordingly abandoned his Cause. . . . I stuck by him however, *as I rather approv’d his giving us good Sermons compos’d by others, than bad ones of his own Manufacture*; tho’ the latter was the Practice of our common Teachers. He afterwards acknowledg’d to me that none of

those he preach'd were his own; adding that his Memory was such as enabled him to retain and repeat any Sermon after one Reading only.⁷⁶

For Franklin, ideas were a common treasury to be shared by all. It was not imitation or even plagiarism that was the problem; it was the claim to intellectual property, a claim that justifies itself by *producing* “plagiarism” (i.e., the possibility of shared knowledge) as its moral (and later, legal) antithesis. Franklin argued that the immorality lay in the fences that intellectual property erected that preserved knowledge for the rich and powerful and prevented its free circulation.

In his autobiography, Franklin extended his critique of the ownership of knowledge to an explicit rejection of patents:

Governor Thomas was so pleas'd with the Construction of [my] Stove. . . that he offer'd to give me a Patent for the sole Vending of them for a Term of Years; but I declin'd it from a Principle which has ever weigh'd with me on such Occasions, viz. *That as we enjoy great Advantages from the Inventions of Others, we should be glad of an Opportunity to serve others by any Invention of ours, and this we should do freely and generously.*⁷⁷

The problem for Franklin was not the circulation and reuse of a common store of knowledge; it was how to get access to that knowledge so that one could learn from it by imitation. Franklin first got “Access to better Books” as an apprentice printer, and it was from those books that he drew the materials out of which he began to compose. As a writer, like the bee that he praised, he learned how to suck the nectar from the flowers of other people's knowledge, how to store that knowledge in the cells of a honeycomb, organizing it so as to make it accessible and retrievable, and finally how to make honey by composing his own work out of “the Sense of all Ages and Nations.”⁷⁸

One narrative of the Enlightenment is as an age of heroic authorship. But Franklin's writings stand against that narrative. In the role of Poor Richard, Franklin defended the fact that “not many of [the verses] are of my own Making”:

I know as well as thee, that I am no poet born; and it is a trade I never learnt, nor indeed could learn. . . . Why then should I give my readers bad lines of my own, when good ones of other people's are so plenty? 'Tis methinks a poor excuse for the bad entertainment of guests, that the food we set before them, though coarse and ordinary, is of one's own raising, off one's own plantation, etc. when there is plenty of what is ten times better, to be had in the market.⁷⁹

Whatever the staggering contributions of Diderot and d'Alembert to the making of the *Encyclopédie*, they, like Franklin, also depended on the information that was "to be had in the market," a market that had been constituted by new practices of note-taking, by new finding aids, and by a new regime of authorship that denied the very foundations on which that collaborative enterprise was built.

In the long history of information management the first early modern period (ca 1450-1650) was especially significant in the development of new techniques and the refinement of existing ones to manage an explosion of printed matter and of manuscript record-keeping. In portraying their work as a radical break from the Renaissance, Enlightenment authors often obscured the indebtedness of their works to pre-existing methods of compiling.

CAPTIONS FOR FIGURES

#1 Jan Gossart, *Portrait of a Merchant*, c. 1530, oil on panel, 63.6 x 47.5 cm, Ailsa Mellon Bruce Fund 1967.4.1, National Gallery of Art, Washington, D.C. Gossart's merchant is using the latest technologies of notebook (the erasable writing tables, bottom right) and of filing (*Alrehande Missiven*, miscellaneous letters received, on the left and *Alrehande Minuten*, miscellaneous copies of letters sent, on the right).

#2 Slips in the hand of Conrad Lycosthenes which match the format used in his stepson Theodor Zwinger's *Theatrum Humanae Vitae* (1565). The few surviving slips were bound at the end of a volume of other Zwinger manuscripts (mostly letters) in the 19th century. Note the cross-reference on one of them "Vide tomum 4 fol 343" which suggests that the slips were originally kept in volumes or tomes. Reproduced by kind permission of the Universitätsbibliothek Basel; Frey Mscr I, 13 #159-63
[blair_stallybrassimage2.jpg]

#3 Slips in another hand, likely Zwinger's own, and much less legible. Note the headword for each entry in the margin (e.g. "vipera cum murena"). the numbers were added by librarians at the moment when the slips were bound into volumes. Reproduced by kind permission of the Universitätsbibliothek Basel; Frey Mscr I, 13 #167-71
[blair_stallybrassimage3.jpg]

#4 An example of how to store slips in volumes, from Vincent Placcius, *De arte excerpendi* (1689). Reproduced by kind permission of Houghton Library, Harvard University. [placcius#1.pdf; a .tif file is available]

#5 The sole remaining example of an earlier form of storage of the "schedae Amerbachianae" containing records of fellowships granted to students at the university in Basel. The Amerbach family was a dominant presence in Basel throughout the 16th century; these records date from the period of Basil Amerbach (1533-91). Reproduced by kind permission of the

Universitätsbibliothek Basel; Ms C VIa 96 [basel005.jpeg; a .tif file is available]

NOTES

¹ See Erik Kwakkel, "A New Type of Book for a New Type of Reader: The Emergence of Paper in Vernacular Book Production," *The Library*, 7th ser. 4 (2003): 219-248. In England, which was certainly well behind the time, paper was rarely used in the making of books at the beginning of the fifteenth century. But more than half of all English books were made of paper by the end of the century.

² See Paul Saenger, "The Impact of the Early Printed Page on the History of Reading," *Bulletin du Bibliophile* 2 (1996): 237-301, 255. See also Margaret M. Smith, "Printed Foliation: Forerunner to Printed Page-Numbers?" *Gutenberg-Jahrbuch* 63 (1988): 54-70 and Mary A. Rouse and Richard H. Rouse, *Authentic Witnesses: Approaches to Medieval Texts and Manuscripts* (Notre Dame, Indiana: University of Notre Dame Press, 1991).

³ We use "information," "knowledge" and "data" following the distinctions articulated in John Seely Brown and Paul Duguid, *The Social Life of Information* (Boston: Harvard Business School Press, 2000), pp. 118-20 and Geoffrey Nunberg, "Farewell to the Information Age," in *The Future of the Book*, ed. Geoffrey Nunberg (Berkeley: University of California Press, 1996), pp. 103-38.

⁴ This word count is based on Vincent of Beauvais, *Bibliotheca mundi* (Douai: Baltazar Beller, 1624; repr. Graz: Akademische Druck- und Verlagsanstalt, 1964-65): 8226 columns at 70 lines per column and 8 words per line.

⁵ Available on line at <<http://mdz10.bib-bvb.de/~zedler/zedler2007/index.html>>. The *Universallexicon* comprised 125,142 columns according to Gerd Quedenbaum, *Der Verleger und Buchhändler Johann Heinrich Zedler* (Hildesheim: Olms, 1977), p. 300; I have estimated 8 words per line and 67 lines per column, for a total word count of 67,076,112. I am grateful to Matthew Loy for a word count of the *Encyclopédie* from the facsimile edition (Stuttgart-Bad Cannstatt: Friedrich Frommann Verlag, 1966), based on estimates of 2 columns per page, 74 lines per column and 9 words per line.

⁶ Important precursors for books illustrated on a large scale included botanical books. The Plantin Press in Antwerp assembled more than 3,700 woodblocks of plants by the end of the sixteenth century. See Helena White, "The Botanical Works of R. Dodoens, C. Clusius and M. Lobelius," in W. de Backer et al, *Botany in the Low Countries (End of the 15th Century – c. 1650)* (Antwerp: City of Antwerp, 1993), pp. 33-7 and Leon Voet, *The Golden Compasses: A History and Evaluation of the Printing and*

Publishing Activities of the Officina Plantiniana at Antwerp (Amsterdam: Vangendt and Co., 1972), vol. 2, pp. 194-252.

⁷ Sabine Vogel, *Kulturtransfer in der frühen Neuzeit. Die Vorworte der Lyoner Drucke des 16. Jahrhunderts* (Tübingen: Mohr Siebeck, 1999), p. 186. For a detailed analysis of how a preacher stockpiled notes and used them for composing sermons, see Wilson H. Kimnach's introduction to Jonathan Edwards, *Sermons and Discourses 1720–1723* (New Haven, Conn.: Yale University Press, 1992).

⁸ For an entry into the literature on medieval *reportationes* see Nicole Bériou, "La réportation des sermons Parisiens à la fin du XIIIe siècle," *Medioevo e Rinascimento* 3 (1989), pp. 87-123; Jacqueline Hamesse, "Reportatio et transmission de textes," in *The editing of theological and philosophical texts from the Middle Ages*, ed Monika Asztalos (Stockholm: Almqvist and Wiksell International, 1986), pp. 11-34. More generally on early modern notes from oral events see Ann Blair "Textbooks and Methods of Note-Taking in Early Modern Europe," in *Scholarly Knowledge. Textbooks in early modern Europe*, ed. Emidio Campi, Simone de angelis, Anja-Silvia Goeing and Anthony Grafton (Geneva:Droz, 2008), pp. 39-73.

⁹ Antoine Dondaine, *Secrétaires de Saint Thomas* (Rome: editori de S. Tommaso, 1956) pp. 10-11, 17.

¹⁰ Ida Maier, *Les manuscrits d'Ange Politien* (Geneva: Droz, 1965).

¹¹ These include diplomatic correspondence as studied by Paul Dover, "Deciphering the diplomatic archives of fifteenth-century Italy," in *Archival Science* 7:4 (2007), pp. 297-316 or the large surviving correspondence of the Paston family 1422-1509: *Paston letters and papers of the fifteenth century*, ed Norman Davis (Oxford: Oxford University Press, 2004).

¹² *Archives of the Scientific Revolution: formation and exchange of ideas in seventeenth-century Europe*, ed. Michael Hunter (Woodbridge, Suffolk: the Boydell Press, 1998).

¹³ Kevin Sharpe, *Reading Revolutions: the politics of reading in early modern England* (Yale University Press, 2000); Christoph Meinel, "Enzyklopädie der Welt und Verzettlung des Wissens: Aporien der Empirie bei Joachim Jungius," in *Enzyklopädien der frühen Neuzeit*, ed. Franz Eybl (Tübingen: Niemeyer, 1995), pp. 162-87.

¹⁴ By the end of the fourteenth century, “paper was four to eight times cheaper than parchment” (Kwakkel, “A New Type of Book,” p. 243). On the explosion of new paper mills during the first decades of printing, see Wisso Weiss, *Zeittafel zur Papiergeschichte* (Leipzig: VEB Fachbuchverlag 1983), pp. 62-69. The role of printing in stimulating paper production is made explicit in Christopher de Hamel, *Scribes and Illuminators* (Toronto: University of Toronto Press, 1992), p. 16.

¹⁵ Jeremias Drexel SJ, *Aurifodina artium et scientiarum omnium; excerptendi sollertia, omnibus litterarum amantibus monstrata* (Antwerp: vidua Ioannis Cnobbari, 1638).

¹⁶ Meinel, p. 166.

¹⁷ “[E]stant necessaire de poser pour maxime, qu’il n’y a livre tant soit-il mauvais ou descrié qui ne soit recherché de quelqu’un avec le temps.” Gabriel Naudé, *Advis pour dresser une bibliothèque* (1628; repr. Leipzig: VEB, 1963), p. 33.

¹⁸ Germaine Warkentin, “Humanism in Hard Times: the Second Earl of Leicester (1595-1677) and his commonplace books, 1630-60,” in *Challenging Humanism: essays in honour of Dominic Baker-Smith*, ed. Ton Hoenselaars and Arthur Kinney (Newark: University of Delaware Press, 2005), p. 229-53; Kevin Sharpe, *Reading revolutions*, p. 192; self-improvement was another of Drake’s motives, see Sharpe, p. 89.

¹⁹ Adrien Turnèbe, *Adversariorum tomi III* (Basel: Thomas Guarinus, 1581) sig. : (2r

²⁰ Pierre Gassendi, *The mirrour of true nobility and gentility being the life of the renowned Nicolaus Claudius Fabricius lord of Peiresk, senator of the parliament at Aix*, Englished by W. Rand (London: printed by J Streater for Humphrey Moseley, 1657), p. 191; repr. in Pierre Gassendi, *Peiresc and his books* (Boston: David Godine Publisher, 1970), [p. 10].

²¹ An attempted purchase of the notes of the German legal scholar Hermann Conring (1606-81) is reported in Vincent Placcius, *De arte excerptendi* (Stockholm and Hamburg: Gottfried Liebezeit, 1689), p. 185. Books annotated by famous scholars like Joseph Scaliger were also especially sought after; see *The auction catalogue of the library of J. J. Scaliger*, facsimile ed. H. J. de Jonge (Utrecht: HES publishers, 1977), p. 4-5. After the death of Carl Linnaeus Jr, in 1783, a wide variety of people, including Catherine the Great of Russia, King Gustav of Sweden, and botanists in Denmark, Holland, France, Switzerland and Sweden, tried to purchase his father’s herbarium, consisting of about 19,000 dried and mounted plants together with his notes on them. Joseph Banks persuaded James Edward Smith to purchase the herbarium, together with Linnaeus’s library and other collections, for £900. See Andrea Wulf, *The Brother Gardeners*:

Botany, Empire and the Birth of an Obsession (London: William Heinemann, 2008), pp. 222-3; on this corpus of notes now at the Linnean Society of London, see Staffan Müller-Wille and Sara Scharf, "Indexing Nature: Carl Linnaeus (1707-78) and his Fact-Gathering Strategies," Working Papers on The Nature of Evidence: How Well Do 'Facts' Travel? No 36/08, London School of Economics.

²² Fernando Bouza, *Communication, Knowledge, and Memory in Early Modern Spain*, trans. Sonia López and Michael Agnew (Philadelphia: University of Pennsylvania Press, 1999), pp. 33-4.

²³ Lawrence C. Wroth, *The Colonial Printer* (New York: Dover Publications, 1965), p. 225.

²⁴ We are grateful to Chris Kyle and Jason Peacey for sharing their unpublished work, including Kyle's "Pen, Pencil, Paper, Print: Political Note-taking in early Stuart England," presented at the History of Material Texts seminar, University of Pennsylvania, March 19, 2007, and Peacey's "Print Ephemera and Political Culture in Seventeenth-Century England, presented at the same seminar on October 7, 2005. See also Michael Mendle, "The 'prints' of the trials: the nexus of politics, religion, law and information in late seventeenth-century England," in *Fear, exclusion and revolution : Roger Morrice and Britain in the 1680s*, ed. Jason McElligott (Aldershot: Ashgate, 2006), 123-37 and Frances Henderson, 'Reading, and writing, the text of the Putney debates', in *The Putney Debates of 1647 : the Army, the Levellers and the English State*, ed. Michael Mendle (Cambridge: Cambridge University Press, 2001), 36-50.

²⁵ *The Diary of Samuel Pepys*, ed. Robert Latham and William Matthews (Berkeley: University of California Press, 1972), vol. 7.

²⁶ *The East India Company Journals of Captain William Keeling and Master Thomas Bonner, 1615-1617*, ed. Michael Strachan and Boies Penrose (Minneapolis: University of Minnesota Press, 1971), pp. 13-14.

²⁷ "A Note of goods the Governor took away from divers persons out of the Alfandige," Folger Library DS465 .A29. See also Sir William Foster, *Letters Received by the East India Company from Its Servants in the East: Transcribed from the 'Original Correspondence' Series of the India Office Records* (London: Sampson Low, Marston and Co, 1896-1902), vol. 4, pp. 81-2.

²⁸ On erasable writing tables, see Peter Stallybrass, Roger Chartier, Frank Mowery, and Heather Wolfe, "Hamlet's Tables and the Technologies of Writing in Renaissance England," *Shakespeare Quarterly*, vol. 55, no. 4 (Winter 2004): 379-419; Stallybrass, "Benjamin Franklin: Printed Corrections and Erasable Writing," *Proceedings of the*

American Philosophical Society, vol. 150, no. 44 (December 2006): 553-567 and "Erasable Notebooks and Writing Technologies 1500-1900," *Gazette of the Grolier Club*, n.s. 58 (2007): 5-44.

²⁹ Jan Gossart, *Portrait of a Merchant*, Washington, D.C., National Gallery of Art. There is another version of this painting in the John G. Johnson Collection, Philadelphia Museum of Art. See Max J. Friedländer, *Jan Gossart and Bernart van Orley*, trans. Heinz Norden, *Early Netherlandish Painting*, vol. 8 (New York: Praeger, 1972), plates 57 and 56. See also John Oliver Hand and Martha Wolff, *Early Netherlandish Painting* (Washington: National Gallery of Art, 1986), 103-7.

³⁰ *Calengier*: ¶ *Item men mach hier in scriuen met priemen ghemaect van gout, of van siluer, of van ten, of van koeper, of van laettoen, ende met eene[n] natten vingher machment wt doen. ¶ Ende wanneert soe veroudt is, dattet niet meer scriuen en wil, soe salt den seluen Jan Seuers soon parkementmaker om een cleyn ghelt vermaeken, dattet so wel scriuen saloft nieuwe waer. ¶ Met vinste te koop in die vermaerde coopstadt van Antwerpen, op di Lombaerde veste: By Jan Seuers soon int gros, in die huyse van Jan Gasten boecke bijnder. ¶ Item of den wtwisschers vingher vet waer, soe salmen neme[n] een cleyspongie met wat weyten bloems, en daer salt veter mede wt gaen. ¶ Int iaer ons Heeren. 1527, New York Public Library, Spencer Coll. Neth. 1527 94-143.*

³¹ These erasable notebooks with woodcuts of coins and multiplication tables were printed from Frank Adams's *Writing Tables, with a Necessarie Calendar for xxv Yeares* (London: Frank Adams, 1577?) to Oliver Ridge's *Writing Tables, with a Calendar for xxxiii Yeeres* (London: the Company of Stationers, 1628?). Given the fragmentary state of many of the copies, how many editions survive in only one copy, and the disappearance rate of such small notebooks, it is probable that not only most copies but also most *editions* have been lost. John Barnard notes that "the most forcible way to emphasize the high loss rates among short, small-format publications is that the primer, printed in tens of thousands year by year from 1660 to 1700, is now represented by only a single copy in a single library" ("The Survival and Loss Rates of Psalms, ABCs, Psalters, and Primers from the Stationers' Stock, 1660-1700," *Library* 6th ser. 21 [1999]: 148-50, 150).

³² Drexel, *Aurifodina*, ch 3. pp, 85ff.

³³ *Peiresc and his books*, [p. 7-8].

³⁴ G. W. Leibniz, *Mathematische Schriften*, ed. C. I. Gerhardt, 7 vols (Berlin then Halle, 1849-63; repr. Hildesheim, 1962), vol. 2, pp. 227-32, as cited in James G. O'Hara, "'A chaos of jottings that I do not have the leisure to arrange and mark with their headings':

Leibniz's Manuscript Papers and their Repository," in *Archives of the Scientific Revolution*, pp. 159-70, p. 160.

^{35.} William Wotton to Evelyn, 8 Aug. 1699, British Library Evelyn Collection MS 3.3.112, as quoted in *Archives of the Scientific Revolution*, p. 123. See also Locke's comment about the publication of Boyle's *General History of the Air*: "I have read them [Boyle's papers] all over very carefully, numbered them according to the titles they belong to and laid them in that order, as best I could, according to the state they are in ... but yet for all this they are not in a condition to be sent to the printer." Locke to Boyle, 21 Oct 1691 in *The correspondence of John Locke*, ed. de Beer, vol. 4, letter 1422, as quoted in Richard Yeo, "John Locke's 'New method' of commonplacing: Managing Memory and Information," *Eighteenth-Century Thought* 2 (2004), pp. 1-38, p. 3.

^{36.} Michael Hunter and Edward B. Davis, "The making of Robert Boyle's *Free Enquiry into the Vulgarly ...* (1686)," *Early science and medicine* (1996), 204-71; and Marie B. Hall, "Boyle's Method of working," *Notes and records of the Royal Society* (1987): 111-23, esp. 111-16, pp. 111, 115. Boyle's "indigested" notes are the antithesis of properly ordered notes, which are repeatedly described as "digested." Samuel Hartlib, for instance, emphasizes the importance of "digesting the marrow" of a book in his account of "ordered reading" (or "concinnation"). The reading techniques that Hartlib recommends include the "Pellian and Reineran analytical reading," the "Ordered doctrinal reading of Streso," "Brooks's Method of construing," the "Marginal reading of Dury (or 'methodus duaraeus') and "Brinsley's Army of Analytical Questions." Hartlib was particularly impressed by Thomas Harrison's "compleatest Art . . . of *excerpendi*." "Hartlib described the technology thus: 'Hee aimes by it to gather 1) All the Authors 2) their Notions or Axiomes 3) their whole discourses. . . The ground of it [is] a passe port with as much paper vpon it as you please. Vpon it there bee slices of paper put on which can bee removed and transposed as one pleases which carries a word of conveniences in it.' The result was 'an incredibly easy compend[ium] for quotations,' that Hartlib praised for its 'Comportibility' since it offered 'Mobility to transpose your notions where you will to put in to find presently.' Harrison proposed a system of cross-referencing ('allegations by ciphers') and hoped to complete 'a special logick for the art of collecting'" (M. Greengrass, "Samuel Hartlib and the Commonwealth of Learning," in *The Cambridge History of the Book in Britain*, vol. 4, 1557-1695 [Cambridge: Cambridge University Press, 2002], ed. John Barnard and D. F. McKenzie, pp. 304-322, 312-3). On Thomas Harrison see Noel Malcolm, "Thomas Harrison and his 'Ark of

studies': an episode in the history of the organization of knowledge." *The Seventeenth Century* 19 (2004), pp. 196-232.

^{37.} On transposition see Hunter and Davis, "The making of Robert Boyle's *Free enquiry into the vulgarly ...* (1686), *Early science and medicine* (1996), 204-71, p. 227

^{38.} Jens Erik Skydsgaard, *Varro the scholar: stuides in the first book of Varro's de re rustica*, copenhagen, Einar Munksgaard, 1968. p. 101-16,

³⁹ See for example the prefaces to the indexes in Theodor Zwinger, *Theatrum Humanae Vitae* (Basel: Eusebius Episcopus, 1586) in which he explains the difficulties posed by synonyms and the diversity of proper names; see also Conrad Gesner: "It is often unpleasant to always go to the index to look for something." "Indicem semper quaerendi causa adire, saepe molestum est." *Historia animalium* (Zurich: Froschauer, 1551), preface. See Ann Blair, "Annotating and indexing natural philosophy," in *Books and the Sciences in History*, ed. Marina Frasca-Spada and Nick Jardine (Cambridge: Cambridge University Press, 2000), pp. 69-89 and, including other kinds of finding devices: *Too Much To Know: information management before the modern era*, forthcoming, ch. 3.

⁴⁰ "In illis voluminibus id plerumque minime invenies, quod maxime quaesieris." "In these volumes most often you find least what you seek the most." Drexel, *Aurifodina*, pp. 139-40; see also pp. 73-4.

⁴¹ See Elisabeth Décultot, *Lire, copier, écrire: les bibliothèques manuscrites et leurs usages au XVIIIe siècle* (Paris: CNRS, 2003), introduction.

⁴² In his copy of Lodovico Domenichi's *Facetie, Motti, et Burli di Diversi Signori et Persone Private* (Venice, 1571), Folger Ms. H.a.2, Gabriel Harvey wrote: "Enioy the souerain repetition of you most excellent notes. Quotidie lege, lege; sed repete, repete, repete [daily read, read; but also repeat, repeat, repeat]" (f. 36r).

⁴³ "Les sciences de mémoire confondent l'esprit, troublent les idées claires et fournissent sur toute sorte de sujets mille vraisemblances, dont on se paie, pour ne savoir point distinguer entrevoir et voir. Les sciences de mémoire inspirent aussi naturellement de l'orgueil : car l'âme se grossit et s'étend pour ainsi dire par la multitude de faits dont on a la tête pleine." Malebranche, *Traité de morale* (1684), as quoted in Chantal Grell, *Histoire intellectuelle et culturelle de la France au Grand Siècle, 1654-1715* (Paris: Nathan, 2000), p. 63. But Hooke described a similar observation as proverbial: "how usual tis for one of these to be defective where the other prevails, may be sufficiently evident from the almost proverbial saying that good wits have ill memories... man's memory seems very shallow and inform and so is very prone to forget circumstances besides it cannot very well propound all it does remember, to be examine'd in order before others and some things with more vehemence and greater concern, and

accordingly the understanding is more apt to be sway'd to this or that hand according as it is more affect or presst by this or that instance, and is very liable to oversee some considerable passages, or to neglect them; and thus very apt to be seduced in pronouncing positively for this or that opinion." As quoted in Lotte Mulligan, "Robert Hooke's 'memoranda': memory and natural history," *Annals of science* 49 (1992): 47-61. On the shifting valuation of memory see Richard Yeo, "Between Memory and Paperbooks: Baconianism and Natural History in Seventeenth-Century England," *History of Science* 45 (2007): 1-46 and "John Locke's 'New method' of commonplacing."

⁴⁴ Plutarch, "How a Yoong Man ought to heare Poets, and how he may take Profit by Reading Poemes," *The Morals*, trans. Philemon Holland (London: J. Kirton, 1657), pp. 17-50, p. 43.

⁴⁵ For Melanchthon's account of note-taking, we are indebted to Francis Goyet's unpublished essay on *Hamlet* and the commonplace tradition and to Germaine Warkentin, "Humanism in Hard Times."

⁴⁶ Francis Daniel Pastorius, *His Hive, Melliotrophium Alvear or, Rusca Apium, Begun Anno Do[mi]ni or, in the year of Christian Account 1696*, University of Pennsylvania Ms. Codex 726, [first title page](#). We are indebted to the notes of and to [conversations with Brooke Palmieri on Pastorius](#).

⁴⁷ We are deeply indebted to Heather Wolfe's unpublished work on filing systems, some of which was presented in her "Note-taking and Filing," Renaissance Society of America, Cambridge University, 7 April 2005. For another example of such filing systems, see a file of mid-seventeenth century tax records in the Public Record Office, London, SP 28/296.

⁴⁸ John Minsheu, *Ductor in Linguas, The Guide Into Tongues* (London: John Brown [for the author], 1617); William Sewel, *A Large Dictionary English and Dutch* (Amsterdam: Steven Swart, 1708).

⁴⁹ "A Bill of money expended by me Henry Linch for necessities &c for the Comittee at Cambden howse Dec 21th 1643, PRO SP 28/212; "An Accompt of what hath been deliver'd for His Majestys Service, To the Clerk of the Hon.ble House of Commons," Folger, MS Add 911.

⁵⁰ For some suggestive discussions of these movements which have yet to be studied closely, see Helmut Zedelmaier, "Facilitas inveniendi. Zur Pragmatik alphabetischer Buchregister," in *Wissenssicherung, Wissensordnung und Wissensverarbeitung: das europäische Modell der Enzyklopädien*, ed. Theo Stammen and Wolfgang E. J. Weber

(Berlin: Akademie Verlag, 2004), pp. 191-203, p. 203 and Anke te Heesen, "Accounting for the Natural World: Double-Entry Bookkeeping in the Field," in *Colonial Botany. Science, Commerce and Politics in the Early Modern World*, ed. Londa Schiebinger and Claudia Swan (Philadelphia: University of Pennsylvania Press, 2005), pp. 237-51.

⁵¹ Yves Congar, "*In dulcedine societatis quaerere veritatem*," notes sur le travail en équipe chez St Albert et chez les prêcheurs au XIIIe siècle," in *Albertus Magnus doctor universalis*, ed. G. Meyer and A. Zimmermann, 1980. On biblical concordances see Richard Rouse and Mary Rouse, "The verbal concordance to the scriptures," *Archivium fratrum praedicatorum* 44 (1974), pp. 5-30

⁵² For some descriptions, see *Catalogo dei manoscritti di Ulisse Aldrovandi*, ed. Lodovico Frati, with Alessandro Ghigi and Albano Sorbelli (Bologna: N. Zanichelli, 1907), e.g. p. 31: de ritu sepeliendi index, catalogus similitudinum ... ex libro similitudinum Joan. De Sancto Geminiano; Index theatri vitae humanae "formati colle solite schedine incollate in ordine alfabético sulle pagine, per la massima parte autografo dell'Aldrovandi. proverbia latina, proverbi volgari (p. 29), lexicon de coronis (p. 27), Pandechion epistemonicon (p. 103), index locorum ubi nascuntur variae res naturales (p. 105), catalogus herbarum pictarum (p. 105).

⁵³ See Conrad Gesner, *Pandectae* (Zurich: Froschauer, 1548), ff. 19r ff and, for a translation, Hans H. Wellisch, "How to make an index--sixteenth-century style: Conrad Gessner on INDEXES and Catalogs," *International Classification* 8 (1981), pp. 10-15.

⁵⁴ On Gesner's compilation techniques see Blair, *Too Much To Know*, ch. 4.

⁵⁵ See Sandra Tugnoli Pattaro, *La formazione scientifica e il "discorso naturale" di Ulisse Aldrovandi*, *Quaderni di Storia e Filosofia della Scienza* 7 (Trent, 1977), p. 15.

⁵⁶ Martin Steinmann, *Die Handschriften des Universitätsbibliothek Basel*, 2nd ed (Basel: Bibliothek, 1987), p. 20. For some attention to the history of archiving in early modern Europe see Cornelia Vismann, *Akten. Medientechnik und Recht* (Frankfurt: Fischer Taschenbuch, 2000) and Ann Blair and Jennifer Milligan eds., *Toward a Cultural History of Archives*, special issue of *Archival Science* 7:4 (2007).

⁵⁷ "De subsidiis si quaeris, in hac tertiatione (cuius accessionem ex ipsa mole primum sed multo rectius ex voluminum numero colligere potes) unius solius Basilij Lucij consobrini carissimi fida et elegante manu in exscribendis iis, quae aciem **psallidôn** respuebant, et conglutinandis iis quae coniungenda erant, per triennium et amplius sum usus." *Theatrum* (1586), sig ***5r

⁵⁸ Steven Shapin, "The Invisible Technician," *American Scientist* 77 (1989), pp. 554-563.

⁵⁹ "In illo utero ita comendo atque exornando, quinque homines diversis locis ac temporibus (singulo pro suo modulo) ita elaborarunt, ut ad eam perfectionem, in qua nunc orbi apparet, perduceretur, adeo ut *Primus* fundamenta iecerit; *Secundus* aedificium ipsum erexerit ac formarit; *Tertius* idipsum non nihil auxerit, atque expolierit. *Quartus et quintus* tandem extremam manum atque colophonem, tam vasto operi addiderint. Ad vitandam morosam exscribendi molestiam, ut libri correcte impressi conscinderentur, ac particulae variae ad editionem futuram accommodatae chartis quibusdam in magni voluminis speciem dispositis affigerentur. Qua in re admodum liberalem se, ac magnificum, in variis sumptibus faciendis, Antonius Hieratus exhibuit." Laurentius Beyerlinck, *Magnum Theatrum Humanae Vitae* (Cologne: Hieratus, 1631), proscenium, sig. e2r.-e3v For a later book made entirely from cutting and pasting previous printed books, see Thomas Jefferson's "demystification" of Christianity, *The Life and Morals of Jesus of Nazareth*. Jefferson composed his quadrilingual anti-transcendental "life" from passages clipped out of six copies of the New Testament: two copies of a London 1794 Greek-Latin edition; two copies of a 1802 French edition, printed in Paris; and two copies of an 1804 English edition, printed in Philadelphia. As Jefferson made clear when purchasing his French copies, "a single [copy], or two of different editions would not answer to my purpose" (Thomas Jefferson, *Jefferson's Extracts from the Gospels*, ed. Dickinson W. Adams [Princeton: Princeton University Press, 1982], p. 30; see also Edgar H. Goodspeed, "Thomas Jefferson and the Bible," *The Harvard Theological Review* 40, 1 [1947]: 71-6).

⁶⁰ Beyerlinck, *Magnum Theatrum*, "Astronomia, Astrologia" p. A564. A long section (to A575) is announced: "Catalogus imperatorum regum et virorum illustrium qui artem Astrologicam exercuerunt et ornarunt, Henrici Ranzovij opera potissimum concinnatus" and on A575 the following section (to A586) is entitled "admonitio circa praecitationes astrologicas, ex eadem opera" (from the same work). Beyerlinck referred here quite precisely to: Henricus Ranzovius, *Catalogus imperatorum regum et virorum illustrium qui artem Astrologicam amarunt, exercuerunt et ornarunt* (Leipzig: Georgius Defner, 1584).

⁶¹ For a nuanced discussion of Zwinger's attitude toward Paracelsus see Carlos Gilly, "Zwischen Erfahrung und Spekulation: Theodor Zwinger und die religiöse und kulturelle Krise seiner Zeit," *Basler Zeitschrift für Geschichte und Alterumskunde* 77 (1977): 57-137 and 78 (1978): 125-223 and "Theodor Zwinger's *Theatrum humanae vitae*: from natural anthropology to the "Novum organum" of sciences" in *Magia, alchymia*,

scienza dal '400 al '700. L'influsso di Ermete Trismegisto, ed. Carlos Gilly and Cis van Heertum (Florence: Centro Di, 2002), 253-73.

⁶² The preface announced that authors would be identified by a letter at the end of each article keyed to a list of contributors and that unsigned articles were authored by Diderot and starred ones edited by him, but this was not consistently put into practice even in the first volume. In later volumes, especially after the book was forbidden in France in 1759 authors identified themselves less frequently, though some continued to do so. Diderot acknowledged too that some authors never allowed themselves to be identified—one of these (possibly d'Holbach) noted that he could only partake of a “collective existence in the Republic of Letters.” For an entry into this difficult question which has attracted considerable scholarship, see Richard Schwab, “The Diderot problem, the starred articles and the question of attribution in the *Encyclopédie*, (parts I and II),” *Eighteenth-Century Studies* 2 (1969), pp. 240-85 and 370-438, p. 244 for the quotation.

⁶³ For example many of the plates were copied from those made by the Académie des Sciences as part of a survey of trades begun in the 17th century and never completed. See Madeleine Pinault, “Sur les planches de l'Encyclopédie,” in *L'Encyclopédisme. Actes du Colloque de Caen* (1987), ed. Annie Becq (Paris: Klincksieck, 1991), pp. 355-67.

⁶⁴ Allen Reddick, *The Making of Johnson's Dictionary 1746-1773* (Cambridge UP, 1990; revised ed. 1996), pp. 4-5.

⁶⁵ Robert Kerr, *Memoirs of the Life, Writings and Correspondence of William Smellie*, 2 vols (Edinburgh: John Anderson, 1811), I, 362-63 (emphases in the original), as discussed in Richard Yeo, *Encyclopaedic Visions: scientific dictionaries and Enlightenment culture* (Cambridge: Cambridge University Press, 2001), p. 180.

⁶⁶ For a history of the use of cards and card catalogs see Markus Krajewski, *Zettelwirtschaft: die Geburt der Kartei aus dem Geist der Bibliothek* (Berlin: Kulturverlag Kadmos, 2002); also Robert Shackleton, *Montesquieu. A critical biography* (London: Oxford University Press, 1961), p. 181.

⁶⁷ See *The Bodleian Library Account Book 1613-1646*, ed. Gwen Hampshire, Oxford Bibliographical Society Publications, n.s. XXI (Oxford: Oxford Bibliographical Society, 1983), p. 32, n. 3: Minsheu “brought his dictionary to Oxford, where it was thoroughly checked by his company of ‘strangers’ and scholars of the University, so that the latter judged it worthy of publication.”

⁶⁸ Albert Labarre, *Bibliographie du Dictionarium d'Ambrogio Calepino (1502-1779)* (Baden-Baden: Éditions Valentin Koerner, 1975),

⁶⁹ “Le calepin n’estoit rien dans son origine, c’estoit un ouvrage pitoyable quand il sortit des mains d'Ambroise de Calepio. Neanmoins il s’est trouvé d’habiles gens qui voyant que l’on pourroit faire quelque chose de bon de son dessein, ont pris la peine de le purger, de le mettre en ordre et de l’augmenter jusqu’au point où nous le voyons aujourd’huy. De sorte qu’il n’y a presque plus que le nom et le titre du livre qui soit de Calepin.” Adrien Baillet, *Jugemens des sçavans sur les principaux ouvrages des auteurs* (Paris: Antoine Dezallier, 1685), vol. 1, avertissement au lecteur, sig. eijjr-v.

⁷⁰ Alfred W. Pollard, *A Short-Title Catalogue of Books Printed in England, Scotland, and Ireland*, revised and enlarged by W.A.Jackson, F.S.Ferguson, and Katharine F. Pantzer (London: the Bibliographical Society, 2nd ed. 1986-1991), 3 vols.

⁷¹ See Margreta de Grazia, *Shakespeare Verbatim: The Reproduction of Authenticity and the 1790 Apparatus* (Oxford: Clarendon Press, 1991).

⁷² *A Defence of the Rev. Mr. Hemphill’s Observations: Or, an Answer to the Vindication of the Reverend Commission* (Philadelphia: Benjamin Franklin, 1735); *The Papers of Benjamin Franklin*, ed. Leonard W. Labaree, Whitfield J. Bell Jr., Helen C. Boatfield, and Helene H. Fineman (New Haven: Yale University Press, 1959), 2 (January 1, 1735 through December 31 1744), pp. 96-7.

⁷³ Benjamin Franklin, *Benjamin Franklin’s Autobiography*, ed. J.A. Leo Lemay and P.M. Zall (New York: Norton and Company, 1986), p. 9.

⁷⁴ Plutarch, "How a Yoong Man ought to heare Poets, and how he may take Profit by Reading Poemes," *The Morals*, trans. Philemon Holland (London: J. Kirton, 1657), pp. 17-50, 43.

⁷⁵ *The Papers of Benjamin Franklin*, 2. 90.

⁷⁶ Franklin, *Autobiography*, p. 82 (emphasis added).

⁷⁷ Franklin, *Autobiography*, p. 98 (Franklin’s emphasis).

⁷⁸ Franklin, *Autobiography*, p. 10 ("access to better books"); *The Papers of Benjamin Franklin*, 7:530.

⁷⁹ *Poor Richard for 1746* (Philadelphia: Benjamin Franklin, [1745]).